User's Manual

PoE PSE

(Power Sourcing Equipment)

Bridge Media Converter

Fast Ethernet 10/100Base-TX(RJ-45)
To 100Base-FX(ST/SC/LC)

PoE PSE

Bridge Media Converter
User's Manual
Release 2.0

Part Number: 620-1031-000
Release Date: May, 2005

1. Overview

IEEE802.3u 100Mbps Fast Ethernet supports two types of media, 10/100Base-TX and 100Base-FX, for network connection. LFP (Link Fault Pass Through) feature enhances the TP-Fiber Link integrity and conformity. Either one of TP or Fiber port is in link-fail state, the LFP converter forces the other port to be at link-disabled state. The PSE media converter complies with IEEE 802.3af, its advanced auto-sensing algorithm enables providing power devices (PD) discovery, classification, current limit, and other necessary functions. It also supports high safety with short circuit protection and power-out auto-detection to PD.

2. Model Description

Model	Power Description
PoE PSE TP-Fiber	AC Line: 100-240V 50-60Hz

The 100Mbps Fiber Transceiver	Wavelength
ST/SC/LC multi-mode 2Km	1310nm
SC/LC.S05/S20/S40/S60Km single-mode	1310nm
SC/LC.S80/S100Km single-mode	1550nm

∗:Any other fiber model, such as MT-RJ is available upon request.

Single Fiber Model	TX, RX Wavelength	
1310nm Single-Mode 20Km	TX (Transmit)	1310nm
∗ 40/60Km models are option	RX (Receive)	1550nm
1550nm Single-Mode 20Km	TX (Transmit)	1550nm
∗ 40/60Km models are option	RX (Receive)	1310nm

Note:
The 1310nm and 1550nm models must be installed in pairs, i.e., install 1310nm model at one end and 1550nm model at the other one.

3. Checklist

Before you start installing the Converter, verify that the package contains the following:

- — The PoE PSE TP-Fiber Converter
- — AC Power Cord
- — This User's Manual

Please notify your sales representative immediately if any of the aforementioned items is missing or damaged.

4. Installing the Converter

PSE TP-Fiber Converter with Powered Device (PD)

⇒ Connect the PSE media converter to an AC power source

⇒ Install the TP media cable to the IEEE 802.3af PD converter (See Fig. 2)

Note: It can work as a pure converter that connects to the non-PoE converter.

⇒ Install the media cable for network connection

Warning:

⇒ Verify that the AC input conforms to your country AC power requirement and then insert the power plug

⇒ Ensure that the power of PSE device is turned on

⇒ Install the media cable for network connection

TP Port	**Default**: AUTO AUTO or FORCE setting, see Fig. 12 S1—Bit 1
	Attach TP Cat. 5 cable to TP port, and the distance can be up to 100m. Use the straight-through cable to connect the switch or workstation, the 10/100 TP port can support AUTO MDI-X sensing.
Fiber Port	**Default**: 100FDX "100FDX"/"100HDX" setting, see Fig. 12 S1—Bit 5

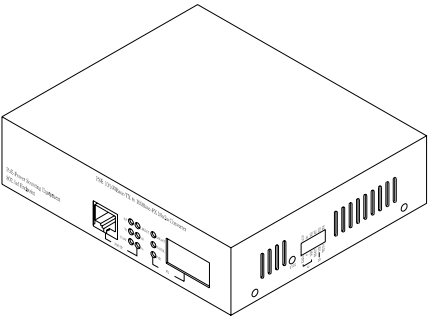

Fig. 1 The View of PoE PSE Media Converter

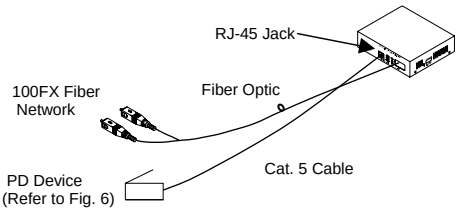

Fig. 2 Connection among PSE Ethernet Switch, Fiber and TP Cables

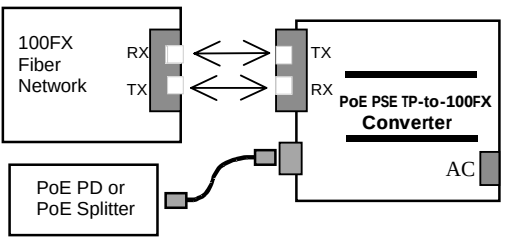

Fig. 3 PSE to PD or PoE Splitter

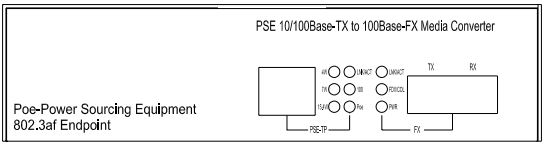

Fig. 4 PoE PSE Media Converter Front Panel

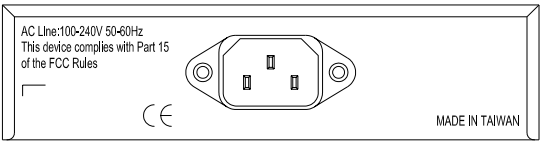

Fig. 5 PoE PSE Media Converter Rear Panel

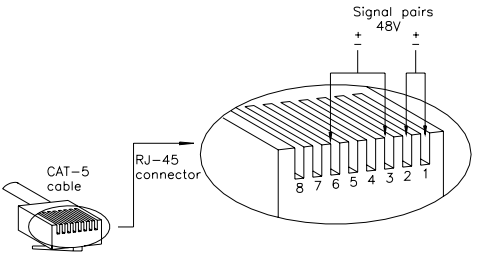

Fig. 6 Endpoint PSE RJ-45 Male Connector

Note:
IEEE802.3af assigns pairs on the RJ-45 connector and Cat.5 cable of Endpoint PSE.

Endpoint : -48V via TP pin 1, 2, 3, 6

5. WDM Single Fiber Model

The TP-Fiber converter is specially designed with an optic Wavelength Division Multiplexing (WDM) model that can transport bi-directional full duplex signal over a single fiber simultaneously.

Single Fiber Model	TX, RX Wavelength	
1310nm Single-Mode 20Km	TX (Transmit)	1310nm
* 40/60Km models are option	RX (Receive)	1550nm
1550nm Single-Mode 20Km	TX (Transmit)	1550nm
* 40/60Km models are option	RX (Receive)	1310nm

Note:
The 1310nm and 1550nm models must be installed in pairs, i.e., install 1310nm model at one end and 1550nm model at the other one.

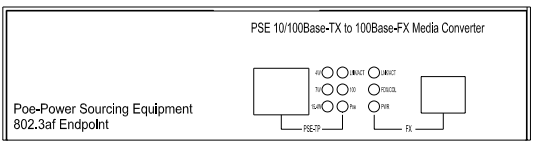

Fig.7 PoE PSE WDM Single Fiber Converter Front Panel

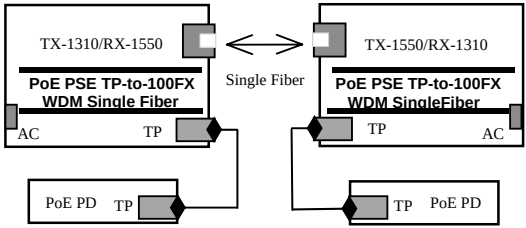

Fig. 8 Power from PSE to PD

6. Link Fault Pass Through

This media converter supports link fault pass through (LFP) in TX/FX converter application. Link status on one port is propagated to the other port to notice the remote nodes. If TP port is unplugged, this converter stops transmission on fiber port. This causes the remote fiber node link to fail. LED shows the link failure on both TP and fiber ports. If fiber link fails, this converter restarts auto-negotiation on TP port but always stays in the link failure state. This causes the remote TP node link to fail. LED also shows the link failure on both TP and fiber ports. Refer to Fig. 9 shown below for the normal status when the link succeeds. Also refer to Fig. 10 and Fig. 11 for the erroneous status when TP Cable A, Fiber Cable B or Fiber Cable C fails to connect.

Note: Link fault pass through (LFP) function only takes effect as S1-Bit4 (see Fig. 12) is enabled. Disabled S1-Bit4 will turn this media converter into a general one.

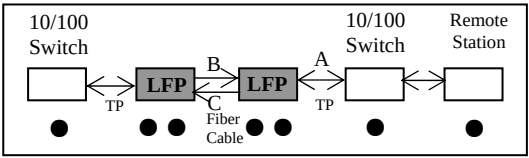

Fig. 9 Normal status via a pair of LFPs

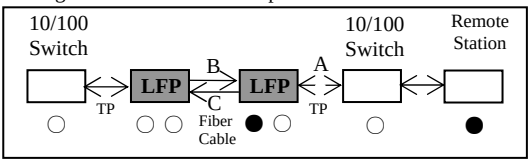

Fig. 10 The status as TP Cable A is broken

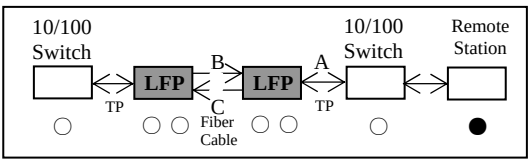

Fig. 11 The status as Fiber Cable B or C is broken

Note : ● indicates LNK/ACT LED Lit
○ indicates LNK/ACT LED Off

Warning:

The LFP (Link Fault Pass Through) function works only when both two converters own this capability in pairs. Furthermore, both LFP converters should be supplied only by the same manufacturer/vender. The connection coming from LFP converters with odd models or non-LFP converters will cease the LFP function.

7. LED Description

LED	Color	Function
FX LNK/ACT	Green	Lit when fiber connection is good Blinks when fiber data is present
FX FDX/COL	Amber	Lit when full-duplex mode is active Off when half-duplex is active Blinks when collision is present
TP LNK/ACT	Green	Lit when TP connection is good Blinks when TP data is present
TP 100	Green	Lit when TP speed is 100Mbps Off when TP speed is 10Mbps
PWR	Green	Lit when +5V power is coming up
PoE PSE-TP	Green	Lit when PoE feeding power is active
	Red	Lit when PoE feeding power is disrupted (In case of overtemperature/overcurrent)
4W	Green	Light when PD Class Type is Class 1
7W	Green	Light when PD Class Type is Class 2
15.4W	Green	Light when PD Class Type is Class 0 or 3

8. Connecting to TP, Fiber Device

Converter TP Port 10/100TP	AUTO, FORCE selectable: Bit 1, 2, 3 of S1 a. AUTO: 10/100 NWay Auto-negotiation b. FORCE: 100 or 10, FDX or HDX
Converter Fiber Port 100FX	100Mbps duplex selectable: Bit 5 of S1 a. FDX for 100FDX fiber link partner, default b. HDX for 100HDX fiber link partner

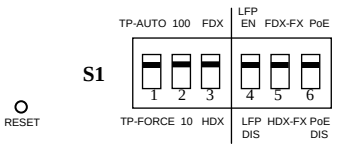

Fig. 12 Reset button and S1—Bit 1, 2, 3, 4, 5, 6 Configuration and Setting

Reset	:	Once S1-1, S1-2, S1-3, S1-4 or S1-5 is changed, please press this button to have the setting taken effect.
S1-1 TP port mode	:	AUTO(default) or FORCE
S1-2 TP port speed	:	100 or 10 when TP at Force
S1-3 TP port duplex	:	FDX or HDX when TP at Force
S1-4 LFP	:	LFP enabled(default) or disabled
S1-5 Fiber port duplex:		100FDX(default) or 100HDX
S1-6 PoE ON/OFF	:	Enable(default) or disable

Note:

1. S1-2 and S1-3 will take effect only when S1-1 is set at TP-FORCE.
2. S1-5 must be set to 100FDX for Single Fiber Model.
3. S1-6 must be set to PoE ON while power supplies to PD.

Warning:

— When TP Nway port is connected to TP 100FDX(force mode) instead of Nway partner, it will result in 100HDX mode with invalid collision signal

— Ensure that all network nodes are configured at an identical operation mode. Improper operation and flow control mode between TP and Fiber port connections will render the LAN to work poorly

9. Cable Connection Parameter

100Base-X network allows 512-bit time delay between any two node-stations in a collision domain. Switch-based Media Converter breaks up TP and Fiber segments' collision domain to extend the cabling distance.

- **TP Cable Limitations:** Cat. 5 and up to 100m
- **Converter Fiber Cable Limitations:**

SC/ST/LC Converter Models	
Multi-mode Half-duplex	412m
Multi-mode Full-duplex	2Km
Single-mode Half-duplex	412m
Single-mode Full-duplex	5/20/40/60/80/100Km

10. PoE PSE TP-Fiber Technical Specifications

- **Standards :** IEEE802.3u 10/100Base-TX, 100Base-FX
  IEEE802.3af Power over Ethernet
- **UTP Cable :** Cat. 5 cable and up to100m
  Fiber Cable :
  50/125, 62.5/125 or 100/140μm multi-mode
  8.3/125, 8.7/125, 9/125 or 10/125μm single-mode
- **PSE Power Feeding Supports :**
  "Endpoint" via TP pin 1, 2, 3, 6
- **LED Indicators :**
  POWER, PoE, TP LNK/ACT, 100, FX LNK/ACT, FDX/COL,4W,7W,15.4W
- **Data Transfer Rate :**

Speed	Forwarding Rate
100Mbps	148,800 PPS
10Mbps	14,880 PPS

- **Flow Control :** IEEE802.3x compliant for full duplex
  Backpressure flow control for half duplex
- **Power Requirement :**
  AC Line: 100-240V 50-60Hz
- **Power Consumption :** 24W
- **Ambient Temperature :** 0° to 50°C
- **Humidity :** 5% to 90%
- **Dimensions :** 40(H) × 158(W) × 133(D) mm
- **Complies with FCC Part 15 Class A and CE Mark**

Note: For connecting this device to Router, Bridge or Switch, please refer to the corresponding device's Technical Manual.